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DISCOVERY OF SUBTERRANEAN FRESHWATER FAUNA ON THE EASTERN SIDE OF NORTH WEST CAPE

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The occurrence of a specialised subterranean freshwater fauna in the western coastal plain of North West Cape has been known since 1945. However, it was not until 1962 that the species and their habitat were fully described and the origin of the fauna discussed (Mees, 1962).

The animals recorded from these wells are: 1. A blind fish of the family Eleotridae, *Milyeringa veritas* Whitley. 2. A blind eel of the family Synbranehidae, *Anommatophasma candidum* Mees. 3. Two species of blind atyid shrimps, *Stygiocaris lancifera* Holthuis and *Stygiocaris stylifera* Holthuis.

In August 1962, two members of the Speleological Group of the Western Australian Naturalists' Club (W.A.S.G.), Paul Symons and the author, on an exploration trip to the Cape Range, discovered in a eave on the eastern coastal plain of North West Cape the three types of subterranean freshwater fauna mentioned above. The eave is known as Kubura Well. It is situated 10 miles south of Vlaming Head lighthouse, and is 100 yards west of the track (Department of Army map reference: 188262, Onslow Sheet SF50-5, Edition I, Series R502). It was reputedly used as an aboriginal watering place, and many broken shells of marine molluses may be found in the vicinity.

The water in the eave is now used for stock purposes, and is drawn out by means of a windmill erected over the entrance, which has been partly elemented up making entry quite difficult. In fact the author was unable to enter. However, the other member of the expedition, Paul Symons, managed to squeeze through.

From his description a narrow solution pipe leads into a small ehamber, approximately 10 ft. high and 25 ft. wide (see Figs. 2 and 3). The floor is almost completely submerged by a pool of shallow water, which deepens to 4 or 5 ft. at the western wall of the ehamber where it disappears under the ledge. A number of slow-moving white fish were immediately observed in the shallows, and a large white eel, about 9 in. long was seen in deeper water. A number of the fish were easily eaught, but attempts to eatch the eel resulted in its disappearance under the ledge. On closer examination of the water, small, almost transparent, shrimps were seen. A number of these were also collected. The fish and shrimps were put alive into a container of the well water, and by acrating the water twice daily they



Fig. 1.—The North West Cape Peninsula, showing Kubura Well and other localities mentioned in the text. Scale in miles. Nos. 1-4 are Wapet oil wells. The area in which the subterranean fauna is known to occur on the western coastal plain is shaded. Modified from Mees, 1962.

were kept alive for three days. But on the night of the third day they succumbed, perhaps due to a rise in temperature, as they were put inside a heated room. The dead specimens were immediately preserved in aleohol.

Upon return to Perth the fish were given to Dr. G. F. Mees at the Western Australian Museum, and the shrimps sent to Dr. L. B. Holthuis at the Leiden Museum, Holland.

The four specimens of blind fish were identified as *Milyeringa* veritas. Their lengths varied from 21 to 31 mm. The 17 blind shrimps were identified as *Stygiocaris stylifera*, but Dr. Holthuis mentioned that they showed some difference from his type material of the species from the western side of the Cape. One specimen, he said, was totally aberrant with the legs much less slender than the



Fig. 2.-Section of Kubura Well.

others. It is interesting to note that of the 162 specimens of blind shrimps sent to Dr. Holthuis in 1959 from the western coastal plain of North West Cape, only 15 were named *Styglocaris stylifera* by him. The remainder he named *Styglocaris lancifera*.



Fig. 3.—Ground plan of Kubura Wcll, at water level. On same scale as Fig. 2.

The discovery of this specialised subterranean freshwater fauna in the eastern coastal plain of the North West Cape does much to support Dr. Mees' theory that the fauna developed in the Cape Range in late Tertiary or Pleistocene times, and from there colonised the coastal platform when the sea retreated.

However the results of Dr. Holthuls' identification suggest that the two faunas are not now connected, but have developed independently in the last 5,000 years since their migration to the coastal platform from the range.

On the Cape Range, which separates the two coastal platforms, a total of 29 eaves and solution pipes were found and explored by this and a previous W.A.S.G. expedition, by D. Cook and T. Fry, earlier this year. Of these only one contained any amount of water. This eave, named by us, Gaping Gill, was approximately 600 ft. above sea level at its deepest point. The water in it was about 2 ft. deep, in a narrow passage, which was followed for 15 yards where it became too narrow to continue further. No life was seen in the water, which was still and slightly brackish.

The large eave system which Condon, Johnstone and Perry (1953) suppose exists in the soft Mandu limestone of the Cape could not be entered from any of the 29 eaves that were explored by us. These caves all occurred in the overlying hard Tulki limestone.

It can be seen that for any adequate study of this fauna and its origin, further examinations and collections from the wells on the eastern coastal plain and at Vlaming Head, besides geological examination of wells on both the castern and western coastal plains, are necessary.

REFERENCES

CONDON, M. A., D. JOHNSTONE and W. J. PERRY. 1953. The Cape Range structure, Western Australia. Pt. 1, Stratigraphy and Structure. Bull. Bur. Min. Resour. Aust., 21: 7-42.

COOK, D. L. 1962. The Caves of Cape Range. J. W.A. Speleological Group, 1: 15-21.

- HOLTHUIS, L.B. 1960. Two New Species of Atyid Shrimps from Subterrancan Waters of N.W. Australia (Decapoda Natantia). Crustaceana, 1: 47-57.
- MEES, G. F. 1962. The Subterranean Fauna of Yardie Creek Station, North West Cape, Western Australia. J. Roy. Soc. W. Aust., 45 (1): 24-32.

NOTES ON URODACUS SCORPIONS

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I. A NEW SCORPION FROM THE CANNING STOCK ROUTE

When accompanying the party reconditioning the wells along the Canning Stock Route, between April 1930 and October 1931, the late O. H. Lipfert (taxidermist at the Western Australian Muscum) collected five specimens of a scorpion which proves to be new to seience. Unfortunately a precise locality is not available for any of the material, which bears only the generalised label: "Canning Stock